

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Page 1 of 7



ATTY. DOCKET NO.

22253-67116 US

SERIAL NO.

10/009,581

APPLICANT

CIVAN *et al.*

FILING DATE

04/30/2002

GROUP

not yet assigned

TECH CENTER 1600/2900

NOV 04 2002

RECEIVED

**U.S. PATENT DOCUMENTS**

EXAMINER INITIALS	Cite No.	DOCUMENT NUMBER	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
	A	4,017,579	Roe <i>et al.</i>	04/12/1977	
	B	4,158,005	Bodor <i>et al.</i>	06/12/1979	
	C	4,396,625	Yamamori <i>et al.</i>	08/02/1983	
	D	4,425,346	Horlington	01/10/1984	
	E	4,981,873	Witte <i>et al.</i>	01/01/1991	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials	Cite No.	Office	DOCUMENT NUMBER	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T

**OTHER PRIOR ART--NON PATENT LITERATURE DOCUMENTS**

EXAMINER INITIALS	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published	T
	1	Abraham <i>et al.</i> , "Preparation of individual human diploid fibroblasts and study of ion transport," <i>Am J. Physiol</i> 248:C154-C164 (1985)	
	2	Alper <i>et al.</i> , "Immunolocalization of AE2 anion exchanger in rat kidney," <i>Am J Physiol</i> 273:F601-F614 (1997)	
	3	Alper <i>et al.</i> , "Expression of AE2 anion exchanger in mouse intestine," <i>Am J Physiol</i> 277:G321-G332 (1999)	

EXAMINER 	DATE CONSIDERED 7/25/03
--------------	----------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 809; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449)

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

ATTY. DOCKET NO.

22253-67116 US

SERIAL NO.

10/009,581

APPLICANT

CIVAN *et al.*

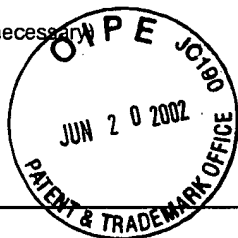
FILING DATE

04/30/2002

GROUP

not yet assigned

(use as many sheets as necessary)



Page 2 of 7

TECH CENTER 1600/2900

NOV 04 2002

RECEIVED

4	Alper, "The Band 3-Related AE Anion Exchanger Gene Family," <i>Cell Physiol Biochem</i> 4:265-281 (1994)	
5	Bidet <i>et al.</i> , "Video microscopy of intracellular pH in primary cultures of rabbit proximal and early distal tubules," <i>Pflügers Arch</i> 416:270-280 (1990)	
6	Boron <i>et al.</i> , "Intracellular pH Transients in Squid Giant Axons Caused by CO <sub>2</sub> , NH <sub>3</sub> , and Metabolic Inhibitors," <i>J. Gen Physiol</i> 67:91-112 (1976)	
7	Bowler <i>et al.</i> , "Electron Probe X-Ray Microanalysis of Rabbit Ciliary Epithelium," <i>Exp Eye Res</i> 62:131-139 (1996)	
8	Bowler <i>et al.</i> , "Effects of Potassium-Free Media and Ouabain on Epithelial Cell Composition in Toad Urinary Bladder Studied with X-Ray Microanalysis," <i>J Membrane Biol</i> 123:115-132 (1991)	
9	Butler <i>et al.</i> , "Na <sup>+</sup> - Cl <sup>-</sup> - and HCO <sub>3</sub> <sup>-</sup> - dependent Base Uptake in the Ciliary Body Pigment Epithelium," <i>Exp Eye Res</i> 59:343-349 (1994)	
10	Caprioli <i>et al.</i> , "The Adenylate Cyclase Receptor Complex and Aqueous Humor Formation," <i>Yale J. Biol. Med.</i> 57:283-300 (1984)	
11	Carré <i>et al.</i> , "Effect of bicarbonate on intracellular potential of rabbit ciliary epithelium," <i>Curr Eye Res</i> 11:609-624 (1992)	
12	Chu <i>et al.</i> , "Electrical Parameters of the Isolated Monkey Ciliary Epithelium and Effects of Pharmacological Agents," <i>Invest Ophthalmol Vis Sci</i> 28:1644-1648(1987)	
13	Civan, "Application of Electron Probe X-Ray Microanalysis (EPMA) to Study of Ionic Recycling and Cell Heterogeneity," Chapter 6 In: <i>Epithelial Ions and Transport: Application of Biophysical Techniques</i> , Wiley, New York (1983)	
14	Civan <i>et al.</i> , "Regulatory Volume Decrease by Cultured Non-pigmented Ciliary Epithelial Cells," <i>Exp Eye Res</i> 54:181-191 (1992)	

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449)

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

ATTY. DOCKET NO.

22253-67116 US

SERIAL NO.

10/009,581

APPLICANT

CIVAN *et al.*

FILING DATE

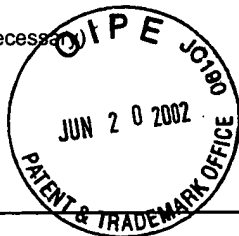
04/30/2002

GROUP

not yet assigned

(use as many sheets as necessary)

Page 3 of 7



TECH CENTER 1600/2900

NOV 04 2002


RECEIVED

15	Civan <i>et al.</i> , "Regulatory Volume Increase of Human Non-pigmented Ciliary Epithelial Cells," <i>Exp. Eye Res.</i> 62, 627-640 (1996)	
16	Civan <i>et al.</i> , "Pathways Signaling the Regulatory Volume Decrease of Cultured Nonpigmented Ciliary Epithelial Cells," <i>Invest Ophthalmol Vis Sci</i> 35:2876-2886 (1994)	
17	Civan, "Transport Components of Net Secretion of the Aqueous Humor and Their Integrated Regulation," <i>Current Topics in Membranes</i> 45:1-24 (1998)	
18	Civan, "Transport by the Ciliary Epithelium of the eye," <i>News Physiol. Sci.</i> 12:158-162 (1997)	
19	Coca-Prados <i>et al.</i> , "PKC-sensitive Cl <sup>-</sup> channels associated with ciliary epithelial homologue of pl <sub>Cin</sub> ," <i>Am J Physiol.</i> 268:C572-C579 (1995)	
20	Coca-Prados <i>et al.</i> , "Expression and cellular distribution of the $\alpha 1$ gap junction gene product in the ocular pigmented ciliary epithelium," <i>Curr Eye Res</i> 11:113-122 (1992)	
21	Cole, "Secretion of the Aqueous Humour" <i>Exp Eye Res</i> 25 (Suppl):161-176 (1977)	
22	Counillon <i>et al.</i> , "The Expanding Family of Eucaryotic Na <sup>+</sup> /H <sup>+</sup> Exchangers," <i>J. Biol Chem</i> 275:1-4 (2000)	
23	Counillon <i>et al.</i> , "Pharmacological Characterization of Stably Transfected Na <sup>+</sup> /H <sup>+</sup> Antiporter Isoforms Using Amiloride Analogs and a New Inhibitor Exhibiting Anti-ischemic Properties," <i>Mol Pharmacol</i> 44:1041-1045 (1993)	
24	Coupaye-Gérard <i>et al.</i> , "Biosynthesis and cell surface delivery of the NHE1 isoform of Na <sup>+</sup> /H <sup>+</sup> exchanger in A6 cells," <i>Am J Physiol</i> 271:C1639-C1645 (1996)	

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449)

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)	ATTY. DOCKET NO.	SERIAL NO.
	22253-67116 US	10/009,581
	APPLICANT CIVAN <i>et al.</i>	
	FILING DATE	GROUP
	04/30/2002	not yet assigned

Page 4 of 7

TECH CENTER 1600/2900

NOV 04 2002

RECEIVED

25	Edelman <i>et al.</i> , "Ion transport asymmetry and functional coupling in bovine pigmented and nonpigmented ciliary epithelial cells," <i>Am. J. Physiol</i> 266: C1210-C1221 (1994)	
26	Escribano <i>et al.</i> , "Isolation and Characterization of Cell-Specific cDNA Clones from a Subtractive Library of the Ocular Ciliary Body of a Single Normal Human Donor: Transcription and Synthesis of Plasma Proteins," <i>J Biochem (Tokyo)</i> 118(5):921-831 (1995)	
27	Frelin <i>et al.</i> , "Interaction of guanidinium and guanidinium derivatives with the Na <sup>+</sup> /H <sup>+</sup> exchange system," <i>EUR J. Biochem</i> 154:241-245 (1986)	
28	Grinstein <i>et al.</i> , "Transmembrane Effects of Irreversible Inhibitors of Anion Transport in Red Blood Cells," <i>J Gen Physiol</i> 73(4):493-514 (1979)	
29	Haas <i>et al.</i> , "Bumetanide inhibits (Na <sup>+</sup> +K <sup>+</sup> +2Cl <sup>-</sup> ) co-transport at a chloride site," <i>Am J Physiol</i> 245:C235-240 (1983)	
30	Helmle-Kolb <i>et al.</i> , "Na/H Exchange activities in NHE1-transfected OK-cells: cell polarity and regulation," <i>Pflügers Arch</i> 425:34-40 (1993)	
31	Hoffman <i>et al.</i> , "Volume Regulation in Cultured Cells," <i>Curr Top Membr Transp</i> 30:125-180 (1987)	
32	Jacob <i>et al.</i> , "Role of ion channels in aqueous humor formation," <i>Am J. Physiol</i> 271:C703-C720 (1996)	
33	Jiang <i>et al.</i> , "Secondary regulatory volume increase conferred on <i>Xenopus</i> oocytes by expression of AE2 anion exchanger," <i>Am J Physiol</i> 272:C191-202 (1997)	
34	Kaufman <i>et al.</i> , "Medical Therapy of Glaucoma," In: <u>Textbook of Ophthalmology</u> , Vol. 7, Podos & Yanoff (eds), Mosby, St. Louis, pp 9.7-9.30 (1994)	
35	Loffing <i>et al.</i> , "Functional and molecular characterization of an anion exchanger in airway serous epithelial cells," <i>Am J Physiol Cell Physiol</i> 279: C1016-C1023, 2000	
EXAMINER		DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449)

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Page 5 of 7



ATTY. DOCKET NO.

22253-67116 US

SERIAL NO.

10/009,581

APPLICANT

CIVAN *et al.*

FILING DATE

04/30/2002

GROUP

not yet assigned

TECH CENTER 1600/2900

NOV 04 2002

RECEIVED

36	McLaughlin <i>et al.</i> , "Effects of HCO <sub>3</sub> <sup>-</sup> on Cell Composition of Rabbit Ciliary Epithelium: A New Model for Aqueous Humor Secretion," <i>Invest Ophthalmol Vis</i> 39:1631-1641 (1998)	
37	Meinild <i>et al.</i> , "The human Na <sup>+</sup> -glucose cotransporter is a molecular water pump," <i>J Physiol</i> , 508:15-21 (1998)	
38	Mitchell <i>et al.</i> "Effects of Uncoupling Gap Junctions Between Pairs of Bovine NPE-PE Ciliary Epithelial Cells of The Eye," <i>Molecular and Cellular Biology of Transporters I, FASEB J</i> 11:A301, Abstract 1748 (1998)	
39	Mitchell <i>et al.</i> "Tamoxifen Accelerates The ATP Activated Regulatory Volume Decrease of Bovine Pigmented Ciliary Epithelial Cells," <i>Invest Ophthalmol Vis Sci</i> 38:S1042 (1997)	
40	Oh <i>et al.</i> , "Dye Coupling of Rabbit Ciliary Epithelial Cells in Vitro," <i>Invest Ophthalmol Vis Sci</i> 35:2509-2514 (1994)	
41	Ohtori <i>et al.</i> , "Pharmacokinetics of Tropical $\beta$ -Adrenergic Antagonists in Rabbit Aqueous Humor Evaluated with the Microdialysis Method," <i>Exp Eye Res</i> 66:487-494 (1998)	
42	Ortego <i>et al.</i> , "Molecular Characterization and Differential Gene Induction of the Neuroendocrine-Specific Genes Neurotensin, Neurotensin Receptor, PCI, PC2, and 7B2 in the Human Ocular Ciliary Epithelium," <i>J Neurochem</i> 69(5):1829-1839 (1997)	
43	Quigley <i>et al.</i> , "The mechanism of optic nerve damage in experimental acute intraocular pressure elevation," <i>Invest. Ophthalmol. Vis. Sci.</i> 19:505 -517(1980)	
44	Raviola <i>et al.</i> , "Intercellular junctions in the ciliary epithelium," <i>Invest Ophthalmol Vis Sci</i> 17:958-981 (1978)	
45	Ritch <i>et al.</i> , "Angle-Closure Glaucoma: Therapeutic Overview" In: <i>The Glaucomas</i> (eds Ritch, Shields, Krupin) 2 <sup>nd</sup> ed. pp.1521-1531, Mosby, St. Louis (1996)	

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449)

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)



Page 6 of 7

ATTY. DOCKET NO.

22253-67116 US

SERIAL NO.

10/009,581

APPLICANT

CIVAN *et al.*

FILING DATE

04/30/2002

GROUP

not yet assigned

TECH CENTER 1600/2900

NOV 04 2002

RECEIVED

46	Rubera <i>et al.</i> , "Cl <sup>-</sup> and K <sup>+</sup> conductances activated by cell swelling in primary cultures of rabbit distal bright convoluted tubules," <i>Am J Physiol</i> 273:F680-F697 (1997)	
47	Scholz <i>et al.</i> , "Protective effects of HOE642, a selective sodium hydrogen exchange subtype 1 inhibitor, on cardiac ischaemia and reperfusion," <i>Cardiovascular Research</i> 29:260-268 (1995)	
48	Shields, <i>Textbook of Glaucoma</i> , 3 <sup>rd</sup> Ed., Williams & Wilkins, Baltimore pp. 11-83 (1992)	
49	To <i>et al.</i> , "Chloride and sodium transport across bovine ciliary body/epithelium (CBE)," <i>Curr Eye Res</i> 17:896-902 (1998)	
50	Tripathi, "Comparative Physiology and Anatomy of the Aqueous Outflow Pathway," In: <i>The Eye</i> , Chap. 3 pp 163-335, Davson & Graham (eds.), Academic Press, New York, (1974)	
51	Vareilles <i>et al.</i> , "Comparison of the effects of timolol and other adrenergic agents on intraocular pressure in the rabbit," <i>Invest. Ophthalmol Vis. Sci.</i> 16:987-996 (1977)	
52	Walker <i>et al.</i> , "Effect of coupling on volume-regulatory response of ciliary epithelial cells suggests mechanism for secretion," <i>Am J. Physiol</i> 276:C1432-1438 (1999)	
53	Wax <i>et al.</i> , "Purinergic Receptors in Ocular Ciliary Epithelial Cells," <i>Exp Eye Res</i> 57:89-95 (1993)	
54	Wiederholt <i>et al.</i> , "Ion Transport Across the Ciliary Epithelium: Lessons from Cultured Cells and Proposed Role of the Carbonic Anhydrase," In: <i>Carbonic Anhydrase</i> , Botre, Gross, Storey (eds), CCH, New York, pp 232-244 (1991)	
55	Wiederholt <i>et al.</i> , "Membrane potentials and intracellular chloride activity in the ciliary body of the shark," <i>Pflügers Arch</i> 407 (Suppl 2):S112-S115 (1986)	

EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449)

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

ATTY. DOCKET NO.  
22253-67116 US

SERIAL NO.  
10/009,581

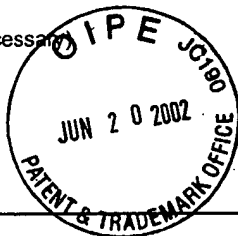
APPLICANT  
CIVAN *et al.*

FILING DATE  
04/30/2002

GROUP  
not yet assigned

(use as many sheets as necessary)

Page 7 of 7



TECH CENTER 1600/2900

RECEIVED  
NOV 04 2002

56	Wolosin <i>et al.</i> , "Gap Junctions and Interlayer Communication in the Heterocellular Epithelium of the Ciliary Body," In: The Eye's Aqueous Humor: From Secretion to Glaucoma, Civan (ed), Academic Press, Boston, pp 135-162 (1998)	
57	Wolosin <i>et al.</i> , "Effect of Heptanol on the Short Circuit Currents of Cornea and Ciliary Body Demonstrates Rate Limiting Role of Heterocellular Gap Junctions in Active Ciliary Body Transport," <i>Exp Eye Res</i> 64:945-952 (1997)	
58	Yantorno <i>et al.</i> , "Volume Regulation of Cultured, Transformed, Non-Pigmented Epithelial Cells from Human Ciliary Body," <i>Exp Eye Res</i> 49:423-437 (1989)	

EXAMINER	DATE CONSIDERED
----------	-----------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449)